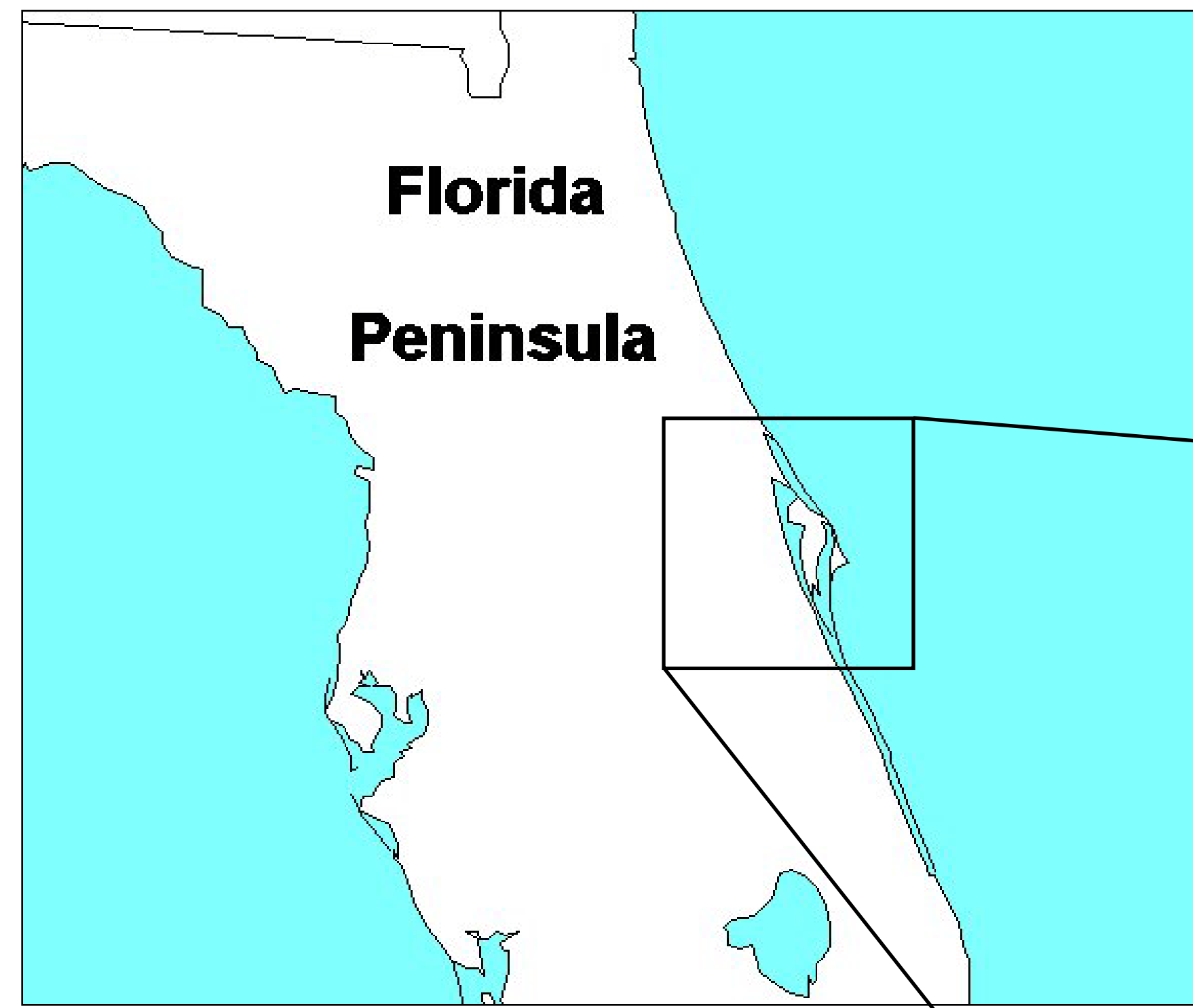
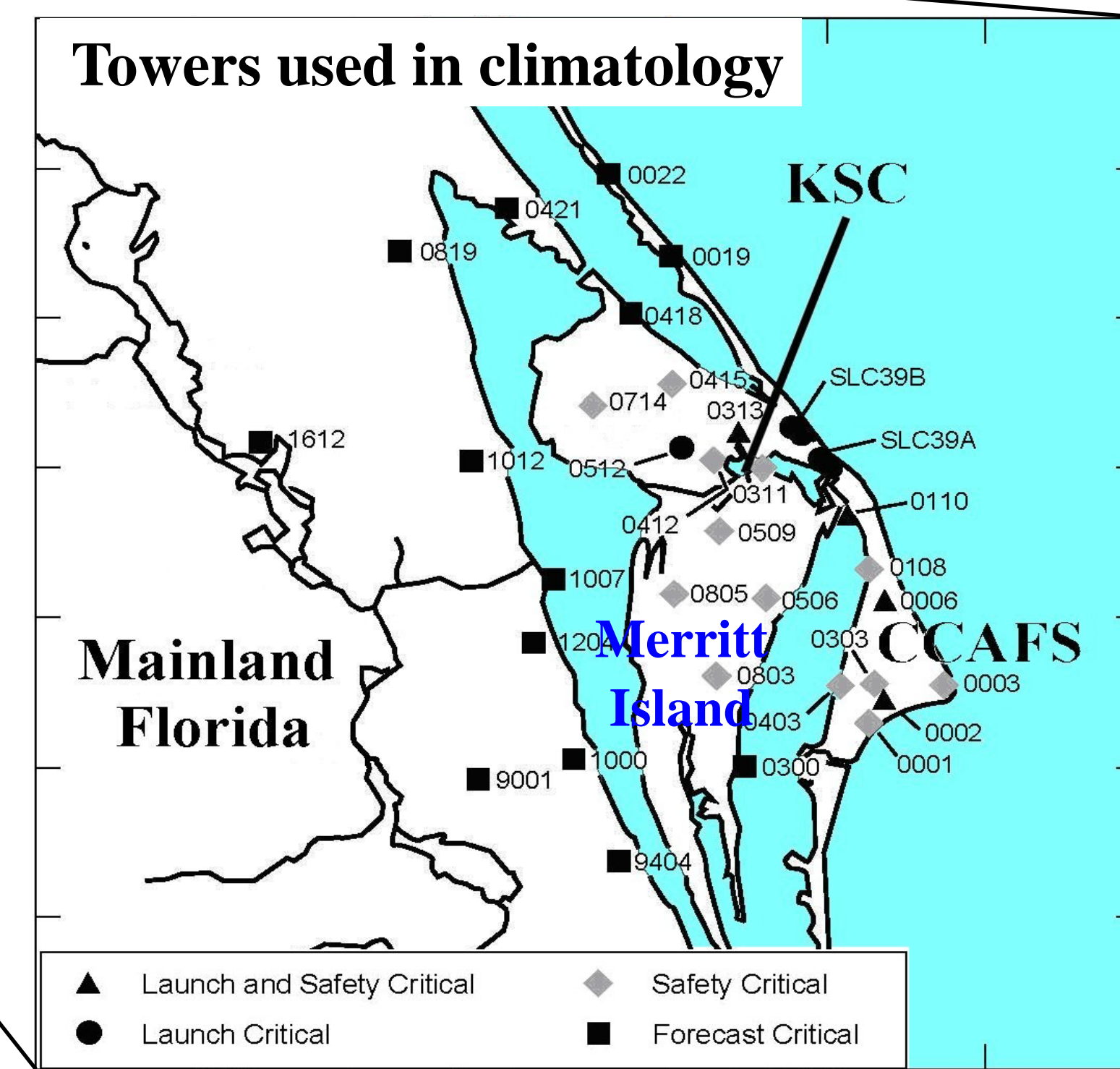


A MESO-CLIMATOLOGY STUDY OF THE HIGH-RESOLUTION TOWER NETWORK OVER THE FLORIDA SPACEPORT

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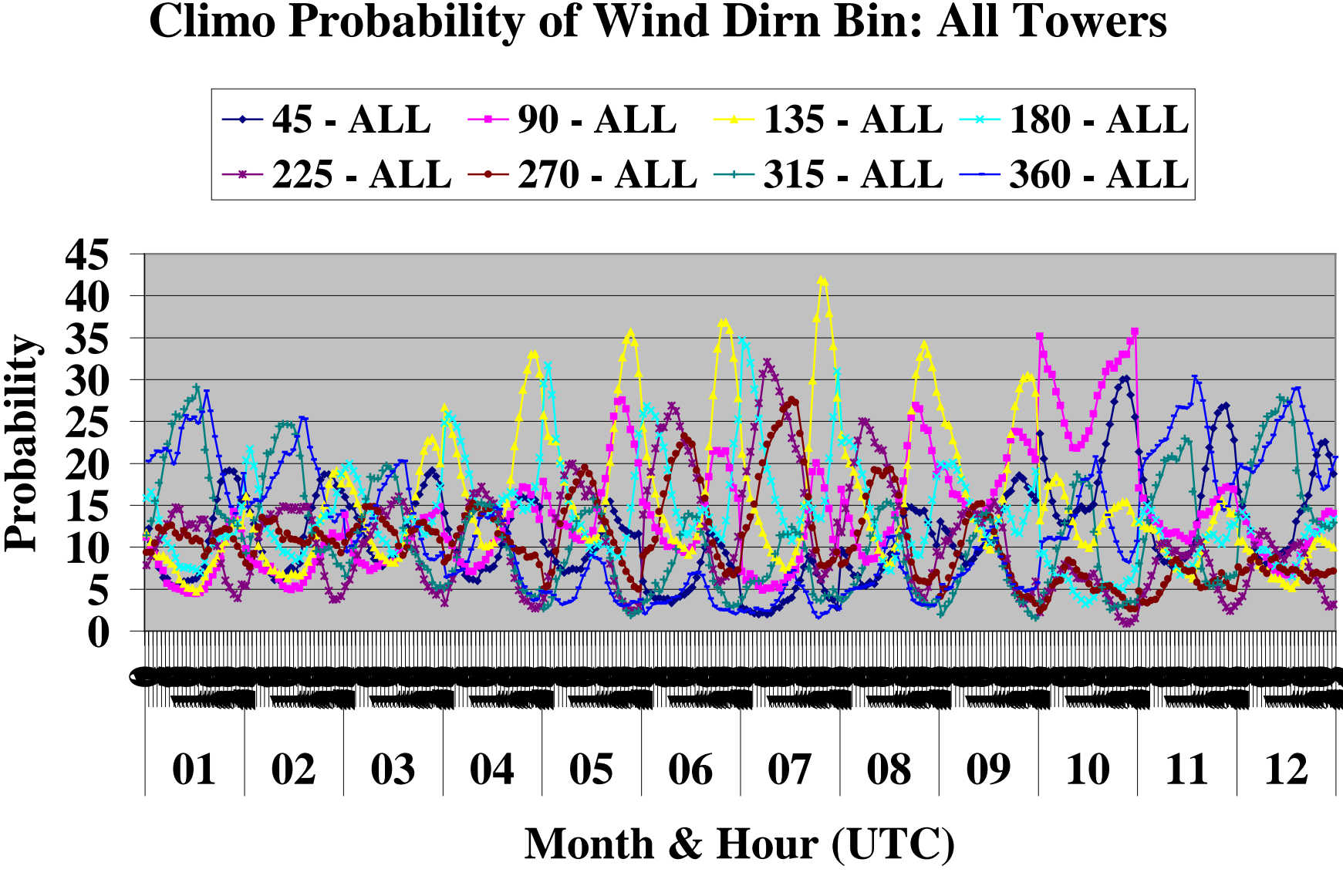
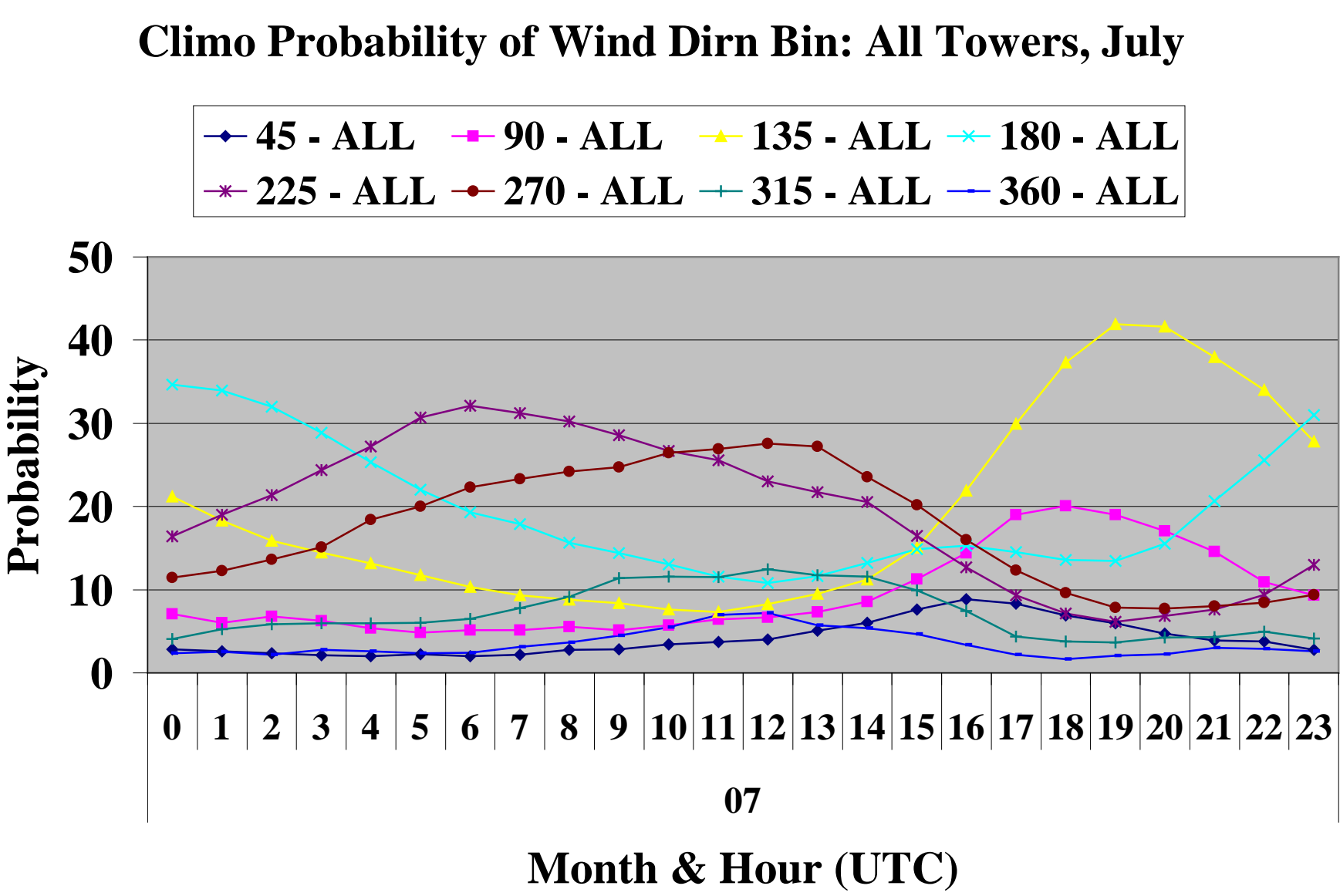
Tower Network



Climatology Results

Wind Direction Probabilities

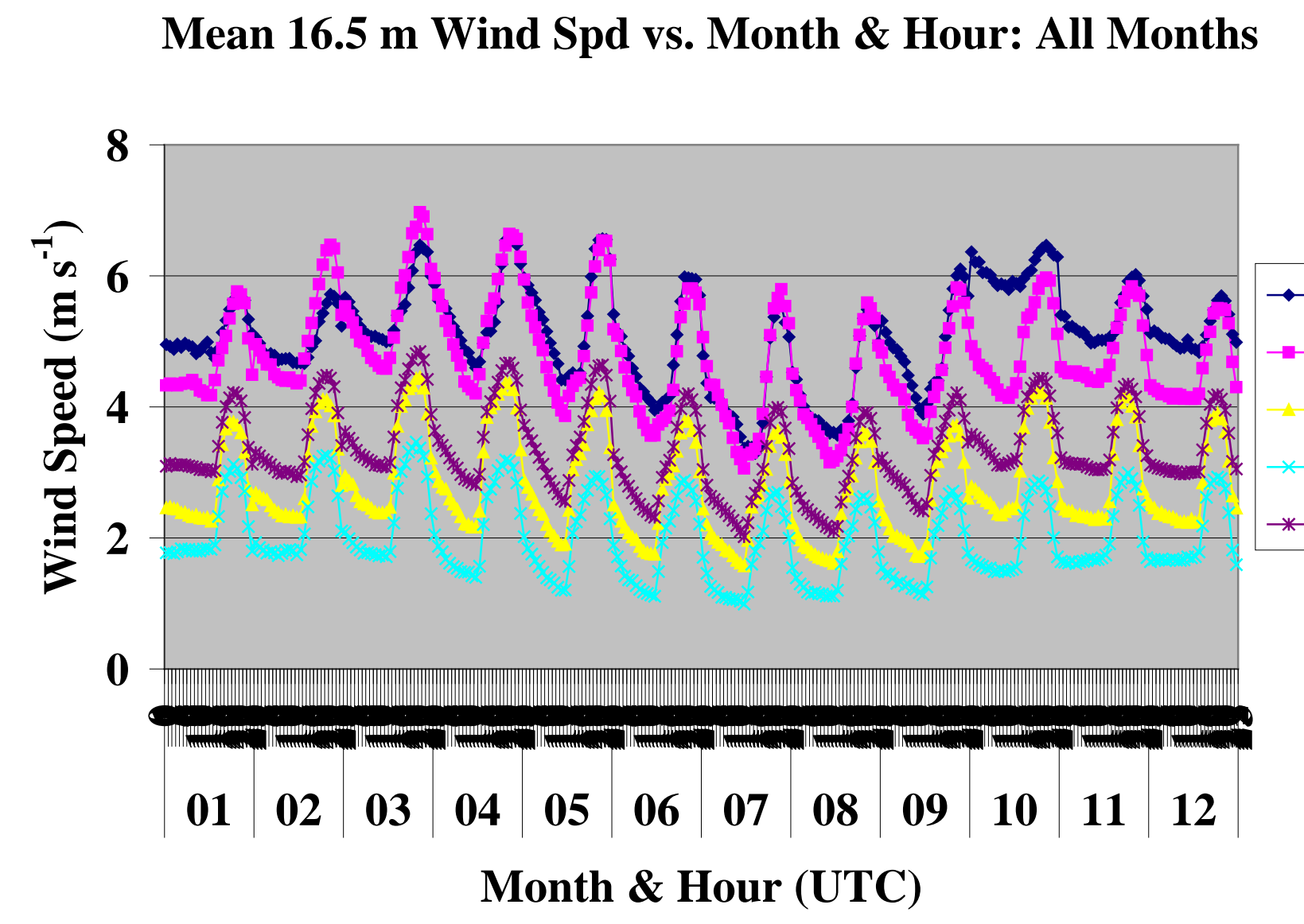
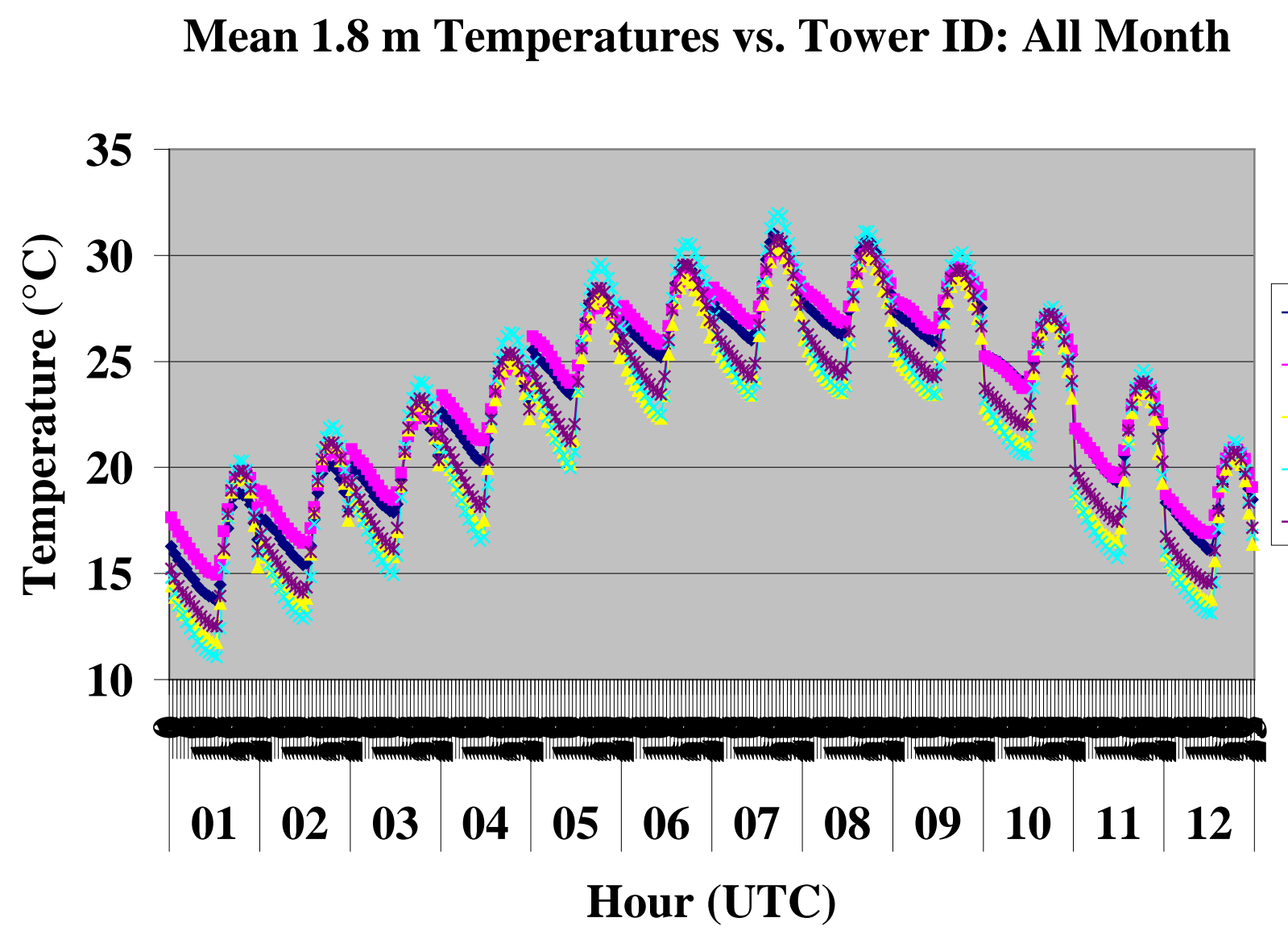
Wind Direction Bin Label (deg)	Valid Wind Directions (deg)
45	0 < WD ≤ 45
90	45 < WD ≤ 90
135	90 < WD ≤ 135
180	135 < WD ≤ 180
225	180 < WD ≤ 225
270	225 < WD ≤ 270
315	270 < WD ≤ 315
360	315 < WD ≤ 360



- ### Quality Control (QC)
- Automated QC algorithm checks
 - Unrealistic value
 - Standard deviation ($\pm 5 \sigma$)
 - Peak-to-average wind speed ratio
 - Vertical consistency
 - Temporal consistency
 - Manual QC procedure for temperatures
 - Heights of 1.8 m and 16.5 m
 - Calculate % data availability
 - Generate frequency distributions for towers with > 70% availability
 - Identify towers with data outliers
 - Generate 2D frequency diagrams versus UTC hour and year
 - Use 2D diagrams, climate data, and adjacent towers to isolate bad data
 - Example shown below for March data

- ### Data Processing
- QC data imported to S-PLUS® software
 - Statistics calculated for each variable
 - Statistics: mean, standard deviation, bias, % data availability, data count, climatological probabilities
 - Variables: $T_{1.8m}$, $T_{16.5m}$, $T_{16.5m} - T_{1.8m}$, Wind Speed_{16.5m}}, Direction Deviation_{16.5m}}
 - Stratification of statistics
 - By variable, month, and UTC hour
 - By wind direction bin and season
 - Wind direction bins every 45 degrees
 - Cool/dry season: November to April
 - Warm/wet season: May to October

Temperature and Stability



Wind Speed

